WHAT IS CLAIMED IS:

1. A method for selectively separating live cells which have expressed mRNA comprising:

a first step of introducing a marker capable of labeling mRNA into cells in a live cell group containing live cells which have expressed a specific mRNA;

a second step of labeling said mRNA with said marker to obtain a live cell group containing live cells having the labeled mRNA; and

a third step of detecting said labeled mRNA to identify the live cells having said labeled mRNA and separating the identified live cells selectively from said live cell group obtained in said second step.

2. The method according to claim 1, wherein said marker in said first step is a probe which has a base sequence complementary to said mRNA and has been labeled with a fluorescent dye, said labeled mRNA in said second step is a hybrid of the probe and said mRNA, and the selective separation in said third step is performed by irradiating light to the live cell group containing live cells having the hybrid, identifying live cells which cause a change in fluorescence of said fluorescent dye based on formation of the hybrid, and separating the identified live cells from the live cell group.

3. The method according to claim 2, wherein said probe comprises a first probe and a second probe, the first probe and the second probe have base sequences capable of hybridizing to said mRNA adjacently, the first probe is labeled with an energy donor fluorescent dye and the second probe is labeled with an energy acceptor fluorescent dye, and said change in fluorescence is caused by fluorescence resonance energy transfer (FRET) from the energy donor fluorescent dye of the first probe to the energy acceptor fluorescent dye of the second probe.

4. The method according to claim 2, wherein the selective separation in said third step of said live cells based on the change in fluorescence is performed by a cell sorter (FACS).

5. The method according to claim 1, wherein said mRNA is an mRNA encoding a cytokine.

6. The method according to claim 3, wherein said mRNA is an mRNA encoding interleukin-2 (IL-2), said first probe is a probe having a base sequence set forth in SEQ ID NO: 9 in the Sequence Listing, and said second probe is a probe having a base sequence set forth in SEQ ID NO: 10 in the Sequence Listing.

7. The method according to claim 1, wherein the live cells selectively separated in said third step are T Helper 1 (TH1) cells.

8. The method according to claim 3, wherein said mRNA is an mRNA encoding interleukin-4 (IL-4), said first probe is a probe having a base sequence set forth in SEQ ID NO: 17 in the Sequence Listing, and said second probe is a probe having a base sequence set forth in SEQ ID NO: 18 in the Sequence Listing.

9. The method according to claim 1, wherein the live cells selectively separated in said third step are T Helper 2 (TH2) cells.